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WE CLAIM:

1. A controlled-release glucosamine composition comprising a therapeutically effective amount of a glucosamine component dispersed in a controlled-release matrix system capable of releasing said glucosamine in an amount and at a rate sufficient to maintain an effective glucosamine blood serum level over a designated time period, said controlled-release matrix system comprising a controlled-release component which comprises at least one water soluble cellulose polymer.

2. A controlled-release glucosamine composition of Claim 1, wherein said glucosamine component is selected from the group consisting of N-acetyl-D-glucosamine, glucosamine hydrochloride, glucosamine sulfate and mixtures thereof.

3. A controlled-release glucosamine composition of Claim 2, wherein a daily dosage of said glucosamine ranges from about 2 mg to about 45 mg per kilogram of body weight.

4. A controlled-release glucosamine composition of Claim 3, wherein said daily dosage is from about 14 mg to about 29 mg per kilogram of body weight.

5. A controlled-release glucosamine composition of Claim 4, wherein said daily dosage is about 21 mg per kilogram of body weight.

6. A controlled-release glucosamine composition of Claim 1, wherein said controlled-release component comprises at least one water soluble high molecular weight cellulose polymer.

7. A controlled-release glucosamine composition of Claim 1, wherein said controlled-release component is selected from the group consisting of hydroxypropyl methyl

8. A controlled-release glucosamine composition of Claim 7, wherein said controlled-release component is HPMC.

9. A controlled-release glucosamine composition of Claim 8, wherein said HPMC is a high molecular weight HPMC.

10. A controlled-release glucosamine composition of Claim 9, wherein said HPMC consists of fine particulates having a particle size such that not less than 80% of the HPMC particles pass through an 80 mesh screen and said HPMC is present in an amount from about 8 to about 12wt%, based upon total weight of the composition.

11. A controlled-release glucosamine composition of Claim 1, wherein said composition is in a form suitable for oral administration.

12. A controlled-release glucosamine composition of Claim 1, wherein said controlled-release matrix system is capable of releasing said glucosamine at a substantially constant rate over a designated time.

13. A controlled-release glucosamine composition of Claim 12, wherein said designated time period is selected from the group consisting of about 6, 8, 12 and 24 hours.

14. A controlled-release glucosamine composition of Claim 13, wherein said designated time period is about 12 hours.

15. A controlled-release glucosamine composition of Claim 1, further comprising a therapeutically effective amount of chondroitin sulfate.

16. A unit dosage for controlled delivery of glucosamine comprising a glucosamine component dispersed in a controlled-release matrix system comprising a controlled-release component capable of providing a release profile which results in a substantially constant glucosamine release rate over a designated time period.

17. The unit dosage of Claim 16, which is a tablet.

18. The unit dosage of Claim 17, wherein said tablet comprises HPMC is an amount of from about 8 to about 12 wt%, said HPMC having a molecular weight of about 85,000, and wherein said designated time period is about 12 hours.

19. A method for the treatment of conditions having an inflammatory component comprising:

administering to a human or animal having a condition with an inflammatory component a composition which contains a therapeutically effective amount of a glucosamine component dispersed in a controlled-release matrix system capable of releasing said glucosamine in an amount an at a rate sufficient to maintain an effective glucosamine blood serum level over a designated time period, said controlled-release system comprising a controlled-release component which comprises at least one water soluable cellulose polymer.

19 18
20. A method of Claim ~~19~~, wherein said glucosamine component is selected from the group consisting of N-acetyl-D-glucosamine, glucosamine hydrochloride, glucosamine sulfate and mixtures thereof.

20 20
21. A method of Claim ~~19~~, wherein a daily dosage of said glucosamine ranges from about 14 mg to about 29 mg per kilogram of body weight.

21 20
22. A method of Claim ~~19~~, wherein said composition is in a tablet form.

22 21
23. A method of Claim ~~22~~, wherein said tablet comprises a high molecular weight HPMC in an amount from about 8 to about 12 wt %.

23 22
24. A method of Claim ~~23~~, wherein said tablet releases said glucosamine at a substantially constant rate over a designated time period.

24 23
25. A method of Claim ~~24~~, further comprising:

maintaining a substantially constant glucosamine release rate, by continually repeating the administering step at the expiration of said designated time period, so as to relieve the inflammatory component of said condition.

25 24
26. A method of Claim 25, wherein said designated time period is approximately 12 hours.

Sub A1

27. A composition for the treatment of arthritis without adversely effecting glucose regulation, said composition comprising a therapeutically effective amount of a glucosamine component dispersed in a controlled-release matrix system capable of releasing said glucosamine in an amount and at a rate sufficient to maintain an effective glucosamine blood serum level for treatment of arthritis, but not to exceed a glucosamine blood serum level which will affect an adverse change in glucose regulation, over a designated time period.

27 24
28. A composition of Claim 27, wherein said adverse change in glucose regulation is manifested by increased insulin resistance.

28 26
29. A composition of Claim 27, wherein said glucosamine component is selected from the group consisting of N-acetyl-D-glucosamine, glucosamine hydrochloride, glucosamine sulfate and mixtures thereof.

29 26
30. A composition of Claim 27, wherein a daily dosage of said glucosamine ranges from about 14 mg to about 29 mg per kilogram of body weight.

30 24
31. A composition of Claim 27, wherein said rate is less than 100 micrograms/min/kg body weight.

31 26
32. A composition of Claim 27, wherein said composition is in a form suitable for oral administration.

32 26
33. A composition of Claim 27, wherein said controlled-release matrix system releases said glucosamine at a substantially constant rate over a designated time period.

33 32
34. A composition of Claim 33, wherein said composition is in the form of a tablet.

34 33
35. A composition of Claim 34, wherein said tablet comprises a high molecular weight HPMC in an amount from about 8 to about 12 wt %.

35 34
36. A composition of claim 35, wherein said designated time period is approximately 12 hours.

Sub F5

37. A method for the treatment of arthritis without adversely effecting glucose regulation, said method comprising:

administering to a patient having arthritis a composition which comprises a therapeutically effective amount of a glucosamine component for the treatment of arthritis dispersed in a controlled-release matrix system capable of releasing said glucosamine in an amount and at a rate sufficient to maintain an effective glucosamine blood serum level for the treatment of arthritis, but not to exceed a glucosamine blood serum level which will affect an adverse change in glucose regulation, over a designated time period.

37 36
38. A method for the treatment of arthritis of claim 37, wherein said patient has both arthritis and diabetes.

38 36
39. A method for the treatment of arthritis of Claim 37, wherein said adverse change in glucose regulation is manifested by increased insulin resistance.

39 36
40. A method for the treatment of arthritis of Claim 37, wherein said glucosamine component is selected from the group consisting of N-acetyl-D-glucosamine, glucosamine hydrochloride, glucosamine sulfate and mixtures thereof.

40 36
41. A method for the treatment of arthritis of Claim 37, wherein a daily dosage of said glucosamine ranges from about 14 mg to about 29 mg per kilogram of body weight.

41 36
42. A method for the treatment of arthritis of Claim 37, wherein said composition is in a tablet form.

42 43. A method for the treatment of arthritis of Claim 41 42, wherein said tablet releases said glucosamine at a substantially constant rate over a designated time period.

43 44. A method for the treatment of arthritis of Claim 42 43, wherein said tablet comprises a high molecular weight HPMC in an amount from about 8 to about 12 wt %.

44 45. A method for the treatment of arthritis of claim 43 44, wherein said designated time period is approximately 12 hours.

45 46. A method for the treatment of arthritis of Claim 31 37, wherein said rate is less than 100 micrograms/min/kg body weight.

46 47. A method for the treatment of arthritis of Claim 36 37, further comprising: maintaining said glucosamine blood serum level, by continually repeating the administering step at the expiration of said designated time period, so as to relieve the symptoms of arthritis.

47 48. A method for the treatment of arthritis of Claim 46 47, wherein said designated time period is approximately 12 hours.